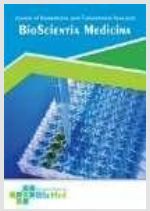
eISSN (Online): 2598-0580



**Bioscientia Medicina: Journal of Biomedicine & Translational Research**

Journal Homepage: www.bioscmed.com

# Self-Perceived Effect of Halitosis Related to Awareness of Maintaining Dental and Oral Health on Mask Use During the Coronavirus Disease 2019 (COVID-19) Pandemic

**Syafara Santos Affadha[1], Rr. Pipiet Okti Kusumastiwi[2]***

[1]Dental Student, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia

[2]Dental Lecturer, Department of Dental Public Health, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia

**ARTICLE INFO**

**Keywords:**
COVID-19
Face mask
Halitosis
Self-perceived
Dentistry

***Corresponding author:**
Pipiet Okti Kusumastiwi

**E-mail address:**
*pipietokti@yahoo.com*

All authors have reviewed and approved the final version of the manuscript.

*https://doi.org/10.37275/bsm.v6i17.733*

**A B S T R A C T**

**Background:** The use of masks which have become part of daily activities during the pandemic, of course, causes various impacts, one of which is related to dental and oral health. The use of masks raises awareness of oral health because unhealthy teeth and mouth cause bad breath (halitosis). This study aimed to determine self-perceived halitosis related to awareness of oral health in using masks during the COVID-19 pandemic in the youth generation. **Methods:** This study was an analytic observational study with a cross-sectional approach. A total of 80 research subjects were included in this study. Participant inclusion criteria were new undergraduate students at the Faculty of Medicine, and Health Sciences, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia and were willing to participate in the study. This study made observations about self-perceived halitosis related to wearing masks. Observations were carried out by interviews using online social media applications. Data analysis was performed using SPSS software version 25. **Results:** The majority of research subjects were 18 years old, female, and had good self-perceived halitosis when using masks. The majority of research subjects had good oral health behavior. The results of this study showed that there was no difference between subjects with poor self-perceived and good self-perceived subjects regarding behavior in maintaining oral health, p> 0.05. **Conclusion:** There is no relationship between self-perceived halitosis related to the use of masks and the behavior of maintaining dental and oral health.

## 1. Introduction

Coronavirus Disease 2019 (COVID-19) has shaken the world and caused people to have to stay at home so that everyone has to go to school from home and work from home. This had an impact on the cessation of various economic activities, which led to the emergence of various impacts on human welfare. As a result of the virulence and spread that is so wide and massive, it is necessary to implement a health protocol. Everyone is required to wear a mask. Masks have become a primary need for everyone and have become part of the new normal. Each activity requires the use of a mask. Both office, school, community activities, and even parties require the use of masks.[1-5]

The use of masks that have become part of daily activities, of course, causes various impacts, one of which is related to dental and oral health. The intensive use of masks causes users to easily smell each other's breath. Bad breath is a biological process caused by the activity of bacteria in the mouth. In conditions where there is a lot of plaque on the teeth,

it causes many bacteria colonize the mouth. The bacteria that colonize the teeth produce gas which causes bad breath (halitosis). The use of masks raises awareness of oral health because unhealthy teeth and mouth cause bad breath (halitosis). The youth generation is the individual who most often uses masks during the COVID-19 pandemic, compared to other generations. The younger generation must continue to go to school, study, and or work during the COVID-19 pandemic. The younger generation is also considered a group that is not vulnerable to COVID-19, so they are still asked to do their activities offline. Of course, this causes the use of masks to become a necessity for the younger generation, given the demands for offline activities.[6-10] This study aimed to determine self-perceived halitosis related to awareness of oral health in using masks during the COVID-19 pandemic in the youth generation.

## 2. Methods

This study was an analytic observational study with a cross-sectional approach. A total of 80 research subjects were included in this study. The research subjects met the inclusion criteria, namely new undergraduate students at the Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia, and the subjects expressed a willingness to participate in this study by signing informed consent. This study was approved by the medical and health research ethics committee of the Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia.

This study made observations about self-perceived halitosis related to wearing masks. This study also observed the behavior of maintaining oral and dental health from respondents. Observations were carried out by interviews using online social media applications. Data analysis was performed using SPSS software version 25. Univariate analysis was performed to present the data frequency distribution for each test variable. Bivariate analysis was carried out to determine the relationship between self-perceived halitosis related to the use of masks and the behavior of maintaining oral health.

## 3. Results

Table 1 shows the baseline characteristics of the research subjects. The majority of research subjects were 18 years old and female. The majority of research subjects come from Yogyakarta. The majority of research subjects had self-perceived halitosis related to wearing masks in the good category. The majority of research subjects had good oral health behavior.

Table 1. Baseline characteristics of research subjects.

| Variable | Frequency | Percentage (%) |
|---|---|---|
| Age | | |
| 17 years old | 22 | 27,5 |
| 18 years old | 44 | 55,0 |
| 19 years old | 14 | 17,5 |
| Gender | | |
| Male | 25 | 31,25 |
| Female | 55 | 68,75 |
| Respondent's regional origin | | |
| Yogyakarta | 42 | 52,5 |
| Outside Yogyakarta | 38 | 47,5 |
| Self-perceived halitosis related to wearing a mask | | |
| Good | 42 | 52,5 |
| Poor | 38 | 47,5 |
| Behavior to maintain dental and oral health | | |
| Good | 41 | 51,25 |
| Poor | 39 | 48,75 |

Table 2 shows the relationship between self-perceived behavior and maintaining oral health. Subjects with poor self-perceived behavior and poor oral health care had the same number of subjects with good self-perceived behavior and poor oral health care. The results of this study showed that there was no difference between subjects with poor self-perceived and good self-perceived subjects regarding behavior in maintaining oral health, p> 0.05.

Table 2. Relationship between self-perceived and behavior to maintain dental and oral health.

| Self-perceived halitosis related to wearing a mask | Behavior to maintain dental and oral health | | p-value* |
|---|---|---|---|
| | Poor | Good | 0,12 |
| Poor | 20 | 18 | |
| Good | 20 | 22 | |

*Chi-square test, p<0,05.

## 4. Discussion

Self-perceived halitosis related to wearing a mask is a condition or an insightful description of research subjects regarding the reasons for halitosis when wearing a mask. This study shows that most of the subjects have good self-perceived halitosis when wearing masks. The research subjects felt that something was wrong with their teeth and mouth. However, this study showed different results from several previous studies. This study shows that good self-perceived is not in line with behavioral awareness. Various theories state that self-perceived is one of the factors that trigger behavior. However, the results of this study show things that contradict the existing theory. The research subjects already had good self-perceived related to halitosis in wearing masks, but this was not able to trigger behavioral awareness to maintain dental and oral health in the research subjects.[11-16]

Several studies show that behavior is triggered or shaped by various elements. Self-perceived is not the only element forming a behavior. Several theories state that there is a peer-group role in triggering a behavior. Peer groups become a motivation, inspiration, and sometimes pressure to do something for an individual. Other studies have shown the role of ease of access in performing a behavior. The COVID-19 pandemic can be one of the complications of visiting a dentist's office to carry out checks related to dental and oral health. Other studies show that the knowledge factor also greatly influences behavior. Various studies related to the constituent elements of behavior can underlie a behavior.[17-20]

## 5. Conclusion

There is no relationship between self-perceived halitosis related to the use of masks and the behavior of maintaining dental and oral health.

## 6. References


1. Kaplan G, Baron-Epel O. What lies behind the subjective evaluation of health status? Soc Sci Med. 2003; 56(8): 1669-76.
2. DeSalvo KB. Measuring population health outcomes. Prev Chronic Dis. 2005; 7(1): 267-75.
3. Joffer J, Flacking R, Bergström E, Randell E, Jerdén L. Self-rated health, subjective social status in school and socioeconomic status in adolescents: A cross-sectional study. BMC Public Health. 2019; 19(1): 1- 8.
4. Locker D, Jokovic A, Tompson B. Health-related quality of life of children aged 11 to 14 years with orofacial conditions. Cleft Palate-Craniofacial J. 2005; 42(3): 260- 6.
5. Matthias RE, Atchison KA, Lubben JE, De Jong F, Schweitzer SO. Factors affecting self-ratings of oral health. J Public Health Dent. 1995; 55(4): 197-204.
6. Skålén C, Nordgren L, Annerbäck EM. Patient complaints about health care in a Swedish County: characteristics and satisfaction after

handling. Nurs Open. 2016; 3(4): 203- 11.
7. Kvist T, Annerbäck EM, Sahlqvist L, Flodmark O, Dahllöf G. Association between adolescents' self-perceived oral health and self-reported experiences of abuse. Eur J Oral Sci. 2013; 121(6): 594-9.
8. Borrell LN, Baquero MC. Self-rated general and oral health in New York City adults: Assessing the effect of individual and neighborhood social factors. Community Dent Oral Epidemiol. 2011; 39(4): 361-71.
9. Pattussi MP, Olinto MTA, Hardy R, Sheiham A. Clinical, social and psychosocial factors associated with self-rated oral health in Brazilian adolescents. Community Dent Oral Epidemiol. 2007; 35(5): 377-86.
10. Banu A, Şerban C, Pricop M, Urechescu H, Vlaicu B. Dental health between self-perception, clinical evaluation and body image dissatisfaction - a cross-sectional study in mixed dentition pre-pubertal children. BMC Oral Health. 2018; 18(1): 1-9.
11. Arantes R, Frazão P. Subjective oral symptoms associated with self-rated oral health among Indigenous groups in Central-West Brazil. Community Dent Oral Epidemiol. 2018; 46(4): 352-9.
12. Lövgren A, Parvaneh H, Lobbezoo F, Häggman-Henrikson B, Wänman A, Visscher CM. Diagnostic accuracy of three screening questions (3Q/TMD) in relation to the DC/TMD in a specialized orofacial pain clinic. Acta Odontol Scand. 2018; 76(6): 380-6.
13. Vettore MV, Ahmad SFH, Machuca C, Fontanini H. Socio-economic status, social support, social network, dental status, and oral health reported outcomes in adolescents. Eur J Oral Sci. 2019; 127(2): 139-46.
14. Frazão P, Capel NP. Socio-environmental factors associated with dental occlusion in adolescents. Am J Orthod Dentofac Orthop. 2006; 129(6): 809-16.
15. Müller L, Van WH, Langerweger C, Molinari L, Saurenmann RK. Maximal mouth opening capacity: percentiles for healthy children 4–17 years of age. Pediatr Rheumatol. 2013; 11(17): 1- 7.
16. Vettore MV, Aqeeli A. The roles of contextual and individual social determinants of oral health-related quality of life in Brazilian adults. Qual Life Res. 2016; 25(4): 1029-42.
17. Yamane-Takeuchi M, Ekuni D, Mizutani S, et al. Associations among oral health-related quality of life, subjective symptoms, clinical status, and self-rated oral health in Japanese university students: A cross-sectional study. BMC Oral Health. 2016; 16(1): 1-8.
18. José Herkrath F, Vianna Vettore M, Loureiro WG. Contextual and individual factors associated with dental services utilisation by Brazilian adults: A multilevel analysis. PLoS One. 2018; 13(2): 1-17.
19. Reissmann DR, John MT, Schierz O, Kriston L, Hinz A. Association between perceived oral and general health. J Dent. 2013; 41(7): 581-9.
20. Allen CD, McNeely CA, Orme JG. Self-Rated Health Across Race, Ethnicity, and Immigration Status for US Adolescents and Young Adults. J Adolesc Heal. 2016; 58(1): 47-56.